BLIND AWAKE NASOTRACHEAL INTUBATION

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Introduction

Blind nasotracheal intubation in the "awake" state has periodically been discussed in the literature.[1-9] This technique is indicated for any situation that makes laryngoscopy difficult or the use of a muscle relaxant hazardous. Among the indications are: full stomachs, facial deformities, maxillo-facial trauma, and limited intermaxillary opening. The development of drugs capable of producing profound tranqualization and anterograde amnesia have enhanced the application of the technique by eliminating the possibility of psychological trauma to the patient. Based on our experience with these drugs in an active dental hospital program, we have had the opportunity to investigate the clinical applications of the technique.

Procedure

All patients are premedicated one and one-half hours prior to surgery as per Table No. 1. After an intravenous infusion is started, blood pressure and electrocardiograph are monitored and both nostrils of all patients are sprayed with a ten percent cocaine solution. Then the sedative drugs are administered until it is felt that the patient is well tranquilized and cooperative. Ideally all patients should be able to respond to simple commands such as "breathe deeply". After allowing two to three minutes for the cocaine to take effect, a nasopharyngeal airway is introduced. The airway serves to test the patency of the nasal passage and provides a vehicle for additional topical anesthesia to the hypopharynx, epiglottis and larynx. The stimulation of the airway also gives an indication of the effectiveness of the sedation; ineffective sedtion is augmented.

A nasotracheal tube is then substituted for the nasopharyngeal airway and once again cocaine is introduced to complete the topicalization of the upper airway. At this time, the neck is extended and the position of the tube in relation to the trachea is determined by a bulge in the neck. The head of the nasotracheal tube is rotated to the right or the left in order to create a more favorable alignment between the trachea and the tube. To improve the anterior-posterior relationship of the tube to the trachea the head is flexed. Since intubation is accomplished during inhalation or exhalation, it is important to regularly instruct the patient to breathe deeply. During the entire period in which the tube is maneuvered, breath sounds are monitored and when their maximum intensity is heard, the nasotracheal tube is advanced with quick thrusts until the trachea is entered. Successful intubation is often followed by coughing, but the only reliable indication is the visual observation of gas exchange through the reservoir bag and verification of pulmonary breath sounds with a stethoscope. Induction is completed with the intravenous injection of a barbiturate.

The following are some examples of the use of this technique for dental patients:

1) A thirty-eight year old white female was admitted for restorative dentistry under general anesthesia. She had a two year history of temporomandibular joint problems with limitation of intermaxillary opening to two centimeters. Attempts to treat the patient with tranquilizers, muscle relaxants and extra-oral nerve blocks were unsuccessful. Since mechanical obstruction by impingement of the coronoid process was

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possible, it was decided to induce anesthesia after intubation. After an uneventful intubation and induction, the surgeon was able to examine the mouth and treat the patient. When questioned on post-operative rounds, the patient did not recall any unpleasant experiences.

2) A seventeen year old black female was admitted for gingivectomy. The gingival hypertrophy was related to diphenylhydantoin therapy. Past medical history included diagnosis of Sturge-Weber Syndrome which is characterized by superficial and deep seated capillary hemangiomas and so-called port wine nevi following the distribution of the trigeminal nerve. The syndrome is associated with hemiplegia, epilepsy and mental retardation.[10] if the laryngoscope caused injury to the intra-oral lesion. Anesthetic induction and surgery were uneventful. Severe mental retardation prevented post-operative subjective evaluation of the induction technique.

3) A twenty-seven year old white male was admitted for enucleation of an extensive giant cell lesion of the mandible. Trismus secondary to previous biopsy prevented the patient from opening his mouth more than two centimeters. An atraumatic blind nasal intubation was performed. When interviewed later, the patient was unable to recall any operative procedure.

4) A twenty-seven year old obese white female was brought to the operating room for orthognatic surgery to correct mandibular prognathism. The patient weighed two hundred and seventy pounds and presented with a classical "bull neck". A smooth awake intubation was performed after sedation was achieved. Her only post-operative complaint was a sore throat which resolved on the third post-operative day.

5) A seventy-five year old white male was admitted for the removal of a mesh prosthesis placed as part of a mandibular reconstruction following a radical neck dissection. There was severe trismus, swelling and distortion of intraoral and pharyngeal anatomy. The use of muscle relaxants and laryngoscopy were deemed hazardous and an awake nasotracheal intubation was performed successfully. This patient was not interviewed post operatively.

6) A forty-eight year old white male was admitted for the removal of an im-

TABLE 1

CASE	AGE	SEX	PRE-OPERATIVE MEDICATIONS			INTRA-OPERATIVE MEDICATIONS				
			Secobarbital	Morphine	Atropine	Diazepam	Droperidol	Fentanyl	Ketamine	Thiamylal
1	38	F	100	7.5	0.4	7.5	5	—	—	—
2	17	F	75	2	0.3	5	—	—	—	—
3	27	M	75	10	0.4	10	2.5	—	—	—
4	27	F	125	5	0.4	15	5	0.05	30	—
5	75	M	100	7.5	0.4	15	2.5	—	—	—
6	48	M	100	5	0.4	15	—	—	40	250

All dosages in milligrams

FOOTNOTE

Generic & Trade Names of Drugs

SECOBARBITAL	— SECONAL
THIAMYLAL	— SURITAL
DIAZEPAM	— VALIUM
MORPHINE SULPHATE	— MORPHINE
ATROPINE SULPHATE	— ATROPINE
KETAMINE	— KETALAR, KETAJECT
DROPERIDOL	— INAPSINE
FENTANYL	— SUBLIMAZE

On examination it was noted that the right side of the patient's lip and nose were severely distended due to a hemangioma making the placement of a facemask impossible. It was presumed that the gingival lesion which entirely covered the anterior maxillary segment was a large hemangioma. Blind nasotracheal intubation was performed through the left nostril because of the inability to properly fit a facemask and the possibility of massive hemhorrage

pacted tooth. On the operating table, after an intravenous injection of two hundred and fifty milligrams of thiamylal sodium, the patient began to cough and retch uncontrollably with inspiratory and expiratory wheezes. There was no history of asthma, but the patient was a known, long standing, heavy smoker. After the coughing ceased and spontaneous ventilation was restored the anesthesia was lightened and a desirable level of sedation was achieved. An awake intubation was performed and the remaining anesthetic and post-operative course proceeded uneventfully. The patient had no recall of the procedure.

Discussion

Nasotracheal intubation is the method of choice for all dental patients receiving lengthy general anesthesia in the main operating room. The purpose of this article is to describe and reemphasize an alternate induction technique. It is not our intent to indicate that all intubations should be done in this manner, nor to say that it is a foolproof method. However, our results using this blind awake nasotracheal intubation have been excellent and have steadily improved with experience.

It is important to remember that awake intubation is not a rapid induction technique. Anesthesiologists and surgeons must realize that proper cocainization, sedation and induction are time consuming.

Since the introduction of diazepam, anesthesiologists have been able to produce both sedation and amnesia without severe cardiovascular or respiratory depression.[11]

As anesthesiologists, the most important tenet is the safety and well-being of the patient. We strongly feel that blind nasotracheal intubation in the awake, analgesic and amnesic state, when indicated, can provide an extra measure of safety to the management of anesthesia for the dental patient.

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Acknowledgement:

The authors wish to thank Dr. Alvin Solomon for his assistance in the preparation of this paper.

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